

Application No. 10/715,367  
H-7187

**EXHIBIT C**

**Decision of the Opposition Division of the EPO**

## A. FACTS AND SUBMISSIONS

1. European Patent EP 1489562 B1 stems from the European patent application EP03028753.6 filed on 12.12.2003 claiming priority of JP2003171476 which was filed on 17.06.2003.
2. The mention of the grant of the European patent was published in Bulletin 2006/43 on 25.10.2006.

The title of the patent is "System and method for tracing bank notes".

The proprietor of the patent is  
Hitachi-Omron Terminal Solution Corp. of Tokyo (JP).

- 3 A first notice of opposition was filed on 25.7.2007 by the first opponent (Opponent 1):  
Gieseke & Devrient GmbH,  
Prinzregenterstr. 159, 81677 München (DE).

- 3.1 Opponent 1 requested for the patent to be revoked in its entirety on the grounds of:

Art. 100a EPC (Lack of Novelty and Inventive Step) and  
Art. 100c EPC (Extension of the subject matter beyond the originally filed content).

He also requested oral proceedings in case the opposition division was not going to grant his request.

- 3.2 Opponent 1 based his arguments on the following documents:

- E1: WO 01/97180 (published on 20.12.2001);
- E2: EZB Rahmenvereinbarung vom 24.05.2002  
(retrieved from [www.ecb.int/pub/pdf/other/cashrecyclingtermsde.pdf](http://www.ecb.int/pub/pdf/other/cashrecyclingtermsde.pdf));
- E3: Prospekt zum Rückverfolgungssystem "PIDSY" von Gieseke & Devrient;
- E4: EP 0744716 B1 (patent specification published on 29.12.1999);
- D1: US2003/0059098 (published on 27.03.2003);

Document D1 was also cited during the examination procedure.

3.3 Opponent 1 argued lack of novelty of claims 1 in respect to E1 and D1 and of claim 11 in respect to E1. He further argued lack of inventive step of claim 1 in respect to E1, D1 and E3 and of claim 11 in respect to E2, E3, D1 and combinations thereof. He also argued that claim 1 contained subject matter beyond the originally filed content, contrary to Art. 123(2) and 100(c) EPC.

4 A further notice of opposition was filed on 25.07.2007 by the second opponent (Opponent 2):

Wincor Nixdorf International GmbH  
Heinz-Nixdorf Ring 1, 33106 Paderborn (DE).

4.2 Opponent 2 requested for the patent to be revoked in its entirety on the grounds of:

Art. 100a EPC (Lack of Novelty and Inventive Step) and  
Art. 100c EPC (Extension of the subject matter beyond the originally filed content).

He also requested oral proceedings in case the opposition division was not going to grant his request.

4.3 Opponent 2 argued based on the following documents:

D2: ProCashIn/Signature für §36 BbankG; Version 4.0 (NT);  
Produktbeschreibung; December 2001;

D3: Protokollnotiz für Präsentation des SNI-Geldeinzahlungsautomaten ProCash  
CRS am 11.08.1999 bei der Kreissparkasse Köln, Neumarkt.

D4: Anschreiben des Zentralen Kreditausschuss Bundesverband deutscher  
Banken vom 20.09.1999 über den Versand des Dokumentes D3 an die  
Teilnehmer;

as well as document D1.

4.4 Opponent 2 argued that claims 1, 8 and 11 lacked novelty in respect to D2, D3 and D4. Additionally, for claim 11, D1 was also novelty destroying. He further argued that claim 1 contained subject matter going beyond the originally filed

content against the requirements of Art. 123(2) and 100(c) EPC.

5. The patentee responded by filing observations, received at the EPO on 28.03.2008.

5.1 He requested for both oppositions to be rejected and the patent to be maintained as granted. Auxiliarily, he requested oral proceedings.

5.2 The patentee contested the validity of E2, E3 and D2 as prior art insofar as it was not certain when - if at all - they were made available to the public. He also argued for the novelty and inventive step of the claims as well as the fulfilment of the requirements of Art. 123(2) and 100(c) in respect to claim 1.

6. On 26.06.2008 the opposition division issued summons to oral proceedings set for 17.12.2008.

6.1 In the annexed communication the division presented its preliminary opinion on the matters at hand. Concerning the contested prior art documents, the division intended to accept E2, but not E3 and D2 since there were doubts on whether they were made available to the public and when. D4 was considered redundant in view of D3 since it did not add any more information.

6.2 Concerning the opponents' arguments on Art. 100(c) the division concurred partially with the opponents that some of the features of claim 1 did indeed appear to go beyond the originally filed content of the application and that the claims violated thus Art. 123(2) EPC.

6.3 From the objections under Art. 100 (a) EPC, the division concurred with the opponents that claim 11 appeared to lack novelty when compared with E1.

6.4 The preliminary opinion of the opposition division was thus that the patent could not be maintained as granted.

7. On 14.10.2008 the response of Opponent 1 was received at the EPO. With his letter, Opponent 1 filed the following documents:

- E5: Print out of an E-mail message (resent on 04.09.08) with the PIDSY brochure (E3) attached that was originally sent on 11.04.2003;
- E6: A press release from 20.03.2003;
- E7: A copy of a confirmation of the notification of E6.

7.1 Opponent 1 presented arguments for the validity of E3 as prior art under Art. 54(2) EPC using documents E5-E7. He further repeated arguments against novelty of the patent claims.

8. Opponent 2 presented his response to the summons with a letter dated 10.11.2008. With this letter the following documents were filed:

- D5: ProCashIn/Signature für §36 BbankG; NT und OS/2; Produktbeschreibung; Version 1.0; Januar 2000;
- D6: A document with an image and the content of a CD-ROM filed as D7;
- D7: CD ROM "ProClassicManuals" V 1.0/12; Materialnummer 1750026319; (Reproduction);
- D8: A printout of bill of delivery Nr. 81271514 from 09.01.2001, Order No 257478;
- D9: A screen printout from an SAP System with the order number 257478;
- D10: A screen printout from an SAP-System with the contents of Materialnummer 1750026263;
- D11: Brochure "The BPV-202 banknote reader from BEB" from BEB Industrie-Elektronik AG;
- D12: Brochure "Product Line BPV - The Banknote Readers" from BEB Industrie-Elektronik AG;
- D13: Affidavit by Mr. Jürgen Schlaudt dated 06.11.2008;
- D14: Brochure "ProCash CRS -The solution for all self-service cash transactions" from Opponent 2, dated February 2000.

Additionally, the testimony of Mr. Schlaudt as a witness was offered.

8.1 D5 is an earlier version of document D2 that the opposition division, in its preliminary opinion, had not accepted as prior art under Art. 54(2) because there were doubts about whether it was made public. Opponent 2 presented D5 and argued based on documents D6, D7, D8, D9 and D10 that it had been made public. More specifically, it was argued that D5 was comprised in the CD ROM (D6)

which was part of a delivery to a client of the Opponent that took place on 09.01.2001.

- 8.2 Opponent 2 argued also lack of novelty of claims 1, 8 and 11 in respect of D5. He further argued lack of novelty of the same claims in respect of prior use as described in the affidavit D13. It was also argued that D14 presented the system that was described in D13.
- 8.3 Additional arguments for lack of novelty were presented using documents D11 and D12. It was namely argued that the banknote sensor mentioned in document D3 was the one presented in the brochures. It was thus clear that the sensor of D3 was an image sensor operating in the same way as in the claimed system.
9. The patent proprietor filed his response with a letter dated 17.11.2008, received at the EPO on the same day.
- 9.1 A new main request (Claims 1 - 17) and four auxiliary requests (1a, 1b, 1c and 2), all with 17 claims were filed.
- 9.2 The Patentee repeated his arguments against the validity of E2 as prior art and he further contested the validity of D3 as prior art under Art. 54(2) EPC. He also contested the admissibility of the documents filed by Opponent 1 with his letter of 13.10.2008 as being late filed.
- 9.3 The Patentee argued also that the newly filed requests overcame the objections stated by the opposition division in their preliminary opinion, namely that the newly filed claims complied with Art. 123(2) EPC and that claim 11 was novel over E1. He further submitted 2 sheets with 4 figures with experimental data on comparisons between two similar images when the images are scanned with the same or different image scanning devices. Based on these data the patentee argued that the use of the same image scanning device for scanning the bank note twice, as in the invention, had concrete technical advantages and that it was not obvious to the skilled person with respect to the prior art.
- 10 On 02.12.2008 the opposition division issued a brief communication to the parties stating that it had been enlarged with a legal member. It further stated that should the prior use presented in D13 be proven, at least some of the claims of

the patent would be prejudiced. It was further stated that it was the responsibility of Opponent 2 to decide whether the offered witness would be brought to the oral proceedings or not.

- 11 On 08.12.2008 the Patentee sent another letter in response to the submissions by Opponent 2. In his letter the Patentee contested the admissibility of documents D5-D14 filed by Opponent 2 as being late filed. He argued that D5 was not sufficiently proven to have been made public and the other documents were not prima facie relevant for them to be accepted in the proceedings.
- 12 On 15.12.2008 a further submission from Opponent 2 was received at the EPO. With his letter, dated 12.12.2008, opponent 2 filed the following documents:

D15: DIN 55350 Teil 13;

D16: John P. Bentley, "Principles of Measurement Systems", 3rd Edition, 1995, Pages 14-17;

D17: DE 2813157;

D18: DE 10157959;

D19: Christian Demant, et al. Industrielle Bildverarbeitung, zweite Auflage, 2002, Page 185;

D20: Wilhelm Burger et al. Digitale Bildverarbeitung, 2005, Pages 426 - 428;

D21: WO 00/02111.

Document D15 was not included in the submissions, Opponent 2 made reference to it in his argumentation and offered to bring it at the oral proceedings.

- 12.1 Opponent 2 essentially argued that to scan the bank note for the second time using the same scanning device as in the first time would be obvious to the skilled person. He further stated that the degree of similarity, its calculation and its use in the way of the invention was known in the art, in view of D17 - D21.
13. Oral proceedings took place as scheduled on 17.12.2008 in the presence of all parties. During the proceedings, the patentee filed an amended main request replacing all his previous requests on file, upon which this decision is based. For more details of the proceedings reference is made to the minutes of oral proceedings.

13.1 During the oral proceedings, the witness Mr. Schlaudt, offered by Opponent 2, was heard in order to establish the prior use claimed. Details about his testimony can be found in the minutes of hearing of witness.

14 This decision is based on the following specification documents:

**Description, Pages**

1-8 filed during Oral proceedings on 17.12.2008

**Claims, Numbers**

1-14 filed during Oral proceedings on 17.12.2008

**Drawings, Figures**

1-9 of the patent specification

14.1 Independent claim 1 reads as follows:

*1. An automatic teller machine (ATM) electronically connected to one or more devices, the one or more devices comprising:  
a deposit device (206) configured to receive an initial bank note (204) and a counterfeit bank note which is physically the same bank note as the initial bank note after having been identified as counterfeit bank note as an external station;  
an image extraction device (208) configured to extract one or more initial images (216) from the initial bank note (204) and the counterfeit bank note;  
a transaction log device (210) configured to attach a transaction log (214) to the one or more initial images (216) of the initial bank note (204);  
a comparison device (222) configured to compare the one or more initial images (216) of the initial bank note to the one or more images (220) of the counterfeit bank note in order to obtain a comparison result (224), the comparison device (222) being configured to calculate values indicating the degree of similarity between the initial bank note and the counterfeit bank note as said comparison result; and  
a retrieval device for tracing the counterfeit bank note, which is configured to retrieve the transaction log attached to the initial bank note, if the comparison device (222) determines that the one or more initial images (216) of the initial bank note and the counterfeit bank note are within the range of similarity.*



14.2 Independent claim 8 has the following wording:

*8. A method of tracing bank notes, comprising the steps of:  
receiving a deposit of an initial bank note (204);  
extracting one or more initial images (216) from the initial bank note (204);  
attaching an initial transaction log (214) to the one or more initial images (216);  
receiving one or more subsequent images (220) of a counterfeit bank note (218),  
which is physically the same bank note as the initial bank note after having been  
identified as counterfeit bank note; wherein the step of receiving one or more  
subsequent images (220) comprises receiving a deposit of a subsequent bank note  
(218);  
extracting one or more subsequent images (220) from the subsequent bank note  
(218);  
comparing the one or more initial images (216) of the initial bank note to the one or  
more subsequent images (220) of the counterfeit bank note by calculating values  
indicating the degree of similarity between the initial bank note and the counterfeit  
bank note in order to obtain a comparison result (224); and  
retrieving the initial transaction log (214) based on the comparison result (224), if the  
comparison result (224) indicates that the one or more images (216, 220) of the  
initial bank note and the counterfeit bank note are within a range of similarity;  
wherein the steps of extracting one or more initial images (216) from the initial bank  
note (204) and extracting one or more subsequent images (220) from the  
counterfeit bank note (218) are carried out using the same image extraction  
device (208).*

## **B. GROUNDS FOR THE DECISION**

- 1 The oppositions fulfill the requirements of Art. 99(1) and 100 and Rule 76 EPC and are admissible.

### **2. Art. 100(c) EPC - Extension of subject matter beyond the originally filed content.**

- 2.1 Although no objections under this provision were raised by the opponents against the final version of the claims since the Patentee amended the claims after the relevant discussion was concluded, most of the features objected to during the preceding procedure are still present therein.
- 2.2 The opponents contested the basis in the original content of the application for the following features, all in claim 1:
  - (i) the "external station" where the bank notes are identified as counterfeit is an unacceptable generalisation of the "bank central office" mentioned in the application;
  - (ii) the retrieval device being "for tracing the counterfeit banknote" is also not supported as it is evident that the whole of the claimed system is for tracing the bank note and not only the retrieval device;
  - (iii) the comparison device which compares initial images of the initial banknote and the counterfeit bank note is not the same as the one described originally which compares images of the initial and the subsequent bank note.
- 2.3 The opposition division did not concur with the opponents on these issues.

Concerning feature (i), the purpose of the mention of an external station is only to state that the comparison takes place externally from the claimed ATM.  
Furthermore it is not a feature of the claimed ATM machine. This feature is found to be supported by the content of the application as originally filed.

Considering feature (ii) it is evident that the retrieval of the transaction log by the retrieval device is made for tracing the counterfeit bank note. The claim does not specify that only this device is responsible for performing the tracing but rather the use of the retrieved transaction log.

As to feature (iii), the application states that a counterfeit bank note becomes a subsequent bank note for the rest of the procedure and that in reality it is physically the same as the initial bank note. Hence the terms subsequent and counterfeit appear to be interchangeable. Feature (iii) is thus supported by the content of the application as originally filed.

2.4 Further objections were raised by the opponents against the granted claims, concerning the features :

- (iv) the image extraction device being configured to extract initial images from the initial bank note and the counterfeit bank note is not supported by the description because it is stated that the image extraction device extracts initial images from the initial bank note and subsequent images of the subsequent bank note (i.e. the device makes initial images of the counterfeit bank note contrary to the content of the description);
- (v) in combination with the previous feature, it appears that the transaction log device which is configured to attach a transaction log to one or more of the initial images, attaches a transaction log to images from the counterfeit bank note as well, something not envisaged by the application.

2.5 In its preliminary opinion, sent with the summons to the oral proceedings, the opposition division concurred with the opponents that there was a confusion in the use of the terms "initial" and "subsequent" leading to the interpretation that the transaction log could be attached to the images of the counterfeit bank note (i.e. at the second image extracting action) instead to the images of the initial bank note (i.e. the first image extracting action). With the amended claims filed by the patentee on 17.11.2008, it was clarified that the transaction log was being attached to the initial images of the initial bank note. The same wording remained also in the final version of the claims after the amendments during the oral proceedings. The opposition division finds that the wording of the claim in the features in question is clear and that there is no room for interpretations that were not envisaged or supported by the originally filed description.

2.6 A further objection was raised by the opponents during the oral proceedings regarding the use of the terms "scores" and "values". It was argued that the feature of claim 1 "the comparison device being configured to calculate values

indicating the degree of similarity..." was not supported by the description as originally filed. More specifically, in the application it is stated that when two images are compared, several observation points in each image are selected, values of observation points are calculated, these values are compared and a score is calculated by the comparison device that compares these values and it is this score that indicates the degree of similarity (see figure 7 and page 17, lines 5-15 of the originally filed description). The opponents argued that the comparison device was calculating scores and not values and that it was the scores that indicated the degree of similarity and not the values as indicated by the claim.

2.7 The opposition division cannot follow this argument. Scores and values are terms which both indicate a number (i.e. a numerical value). From the application it is clear that in both cases such numerical values are calculated, first for the observation points in the images and then as a result of the comparison of those first calculated numerical values. The application uses two different terms in order to make it more clear but in reality these terms simply indicate a numerical value and are considered to be interchangeable. Furthermore, the claims make it clear that the value calculated by the comparison device indicates the degree of similarity, leaving no doubt about the result produced by the comparison device or what it is used for. The division finds that this feature is supported by the originally filed content of the application.

2.8 Hence, the claims are found to be fulfilling the requirements set by set by Art. 123(2) EPC.

### **3. Art. 100(a) EPC - Novelty, Inventive Step**

#### **3.1 Prior Art, Art 54(2) EPC**

The Patentee contested several documents filed by the Opponents during the procedure as to their validity as prior art in the sense of Art. 54(2) EPC. The opposition division had given a preliminary opinion on some of them in the communication annexed to the summons to the oral proceedings. At the oral proceedings, the opposition division identified as most relevant prior art the documents E1, D3 and D5. Both D3 and D5 were contested by the Patentee. The division invited first the parties to present arguments concerning the admissibility of D3 as prior art. It was further agreed that should any party wish to present

arguments based on any other document that had been contested by the Patentee, its admissibility as prior art would be discussed first.

3.1.1 Regarding D3, which presents a written account of a presentation of ProCash CRS, an automatic teller machine manufactured and sold by Siemens Nixdorf (which later transformed to Wincor Nixdorf - Opponent 2), the Patentee mainly argued that there was a tacit secrecy agreement binding those present and hence it could not be considered that the content of the presentation was made public. The argument was based on a sentence of the penultimate paragraph of the document (page 5): "Die Hersteller werden gebeten, bis dahin davon abzusehen, aktiv die Sitzungsergebnisse zu nutzen und auf die Banken zuzugehen." According to the Patentee, this passage means that the manufacturers of the ATM were required to keep the content of the presentation secret, something to be interpreted as a tacit secrecy agreement.

The opposition division cannot follow this argument. At the described presentation there were 15 persons from 12 different companies and services present. Not all of them were clients of Opponent 2 as some of them were from Bundeskriminalamt, Deutsche Bundesbank and other associations. Hence, this was not a closed presentation of a manufacturer trying to sell a product to a customer. Furthermore, the statement cited above cannot be interpreted as a tacit secrecy agreement: the manufacturers were only requested to refrain from actively promoting their product to other banks. There was no request to keep the information secret or to refuse to give any information in case they were asked to do so. The opposition division sees thus no reason to doubt that the content of D3 was made public before the priority date of the opposed patent.

3.1.2 Opponent 1 argued for the validity of E3 as prior art. E3 is a brochure of a system called PIDSY, produced by Opponent 1. The opposition division had stated in their preliminary opinion that there was no date on the document other than a statement of copyright in 2003, which was not sufficient since the priority date of the patent is 17.06.2003. Opponent 1 argued that E3 contained a file name, namely "BR\_PIDSY\_mar03\_D ZDC", which was printed on the last page of the document. He argued that this was the file name of the file which E3 was a print out of and that "mar03" indicated March 2003. He argued further using E5 which is a printout of an e-mail message, originally sent on 11.04.2003 that this e-mail contained an attached file with the name "BR\_PIDSY\_mar03\_D.pdf" which was the same file as E3. He argued that E5 proved that the content of E3 was sent as a

pdf file to somebody outside the company of Opponent 1 before the priority date of the patent. He further argued that E6 and E7 proved that the PIDSY system was known to the public before the priority date.

The opposition division did not accept these arguments. It was not fully proven that the string "BR\_PIDSY\_mar03\_D.pdf" (attachment mentioned in E5) was indeed identical with the file "BR\_PIDSY\_mar03\_D ZDC" submitted as E3 or that "mar03" could only be interpreted as March 2003. Neither was it proven beyond doubt that the file attached to the e-mail of E5 had the same content with E3, especially since there were differences in the file names. For these reasons the opposition did not accept E3 as valid prior art under Art. 54(2) EPC.

3.1.3 At a later stage of the oral proceedings, Opponent 2 argued based on documents D11 and D12 which present image sensors of the company BEB Industrie-Elektronik. The opposition division did not accept these documents as being valid prior art since they contain no indication whatsoever of any date that they might have been made available to the public. Opponent 2 did not argue further on the matter.

3.1.4 Opponent 2 argued also for the acceptance of the late filed documents D17, D18 and D19 saying that they were filed in response to the amendments filed by the Patentee on 17.11.2008. According to Opponent 2, these documents were also relevant since they described the calculation of the Euclidean distance in comparing two images as well as the calculation of the degree of similarity. The opposition division did not accept the documents in the procedure since they were filed only 5 days before the oral proceedings (received actually at the EPO only 2 days before), they belong to a different technical field (comparing aerial photographs, industrial image processing) and, in addition to that, the information they provide was already available in E4.

3.1.5 Concerning document D5, the division raised doubts about whether it had been made available to the public in the manner argued by Opponent 2. Furthermore, D13, the affidavit of Mr. Schlaudt, contained passages that were copied from D5. The division thus decided, in order to avoid unnecessary discussions about the admissibility of D5 and D13 as prior art, to hear the witness. After hearing the witness, the claimed prior use was established and admitted by the division. The content of the testimony of the witness rendered D5 and D13 redundant and no more pertinent. They were not further discussed and the division did not have to

take any decision on their validity as prior art.

3.1.6 The prior use claimed by Opponent 2 was established by the testimony of Mr. Schlaudt. The Patentee contested the hearing of witness as being late offered. The Patentee argued that all documents D5-D13 were late filed and did not appear to be prima facie relevant and that they should not be accepted in the proceedings. He also contested the hearing of the witness that was offered by Opponent 2 at the same time of filing the above-mentioned documents. The opposition division did not agree with the Patentee because documents D5-D13 were filed by Opponent 2 mainly as a response to the division's preliminary opinion of not accepting the validity of D2 as prior art. Since the division had still doubts about the validity of D5 as prior art and taking into account that, according to the affidavit, the prior use would be relevant should it be proven, it decided to hear the witness.

3.1.7 After hearing the witness, who gave convincing evidence free of any contradiction, and the comments of the parties on his testimony, the content and extend of the prior use was established as follows:

A public demonstration of the ATM system with the name "ProCash CRS" took place at the bank Sparkasse Rhein-Nahe in Bad Kreuznach in the spring of 2001. The system accepts deposits of bank notes. A bank note is inserted in the slot made for this purpose in the system. The bank note is checked in order to be established whether it is genuine or not. The system comprises a bank note sensor that senses characteristics of the bank note and compares them with pre-stored characteristics of genuine bank notes. The result of this comparison can be one of the following three: (a) the bank note is genuine; (b) the bank note is suspect to be false and (c) the bank note is false. If the result is either (b) or (c) the system stores the sensed characteristics of the bank note along with data identifying the depositor such as account number, date and time of the deposit etc. The bank notes deposited are then forwarded to the bank. There is another authentication that takes place and if any of bank notes that were initially marked as suspect (b) or false (c) are confirmed indeed to be false they are returned to the system they were originally deposited in order to be traced (i.e. to find out who deposited them). The system comprises a special function for tracing, controlled by the user under a particular interface. Under the instructions of the interface, the user re-inserts the bank note in the ATM system which is scanned. This action is repeated four times as the bank note is scanned in both orientations

and both sides. Using the scanned characteristics the system finds and retrieves the originally stored information and the depositor is identified. Details about the sensor used ("Notenprüfer") were not known. As to what type of characteristics of the bank notes were sensed or stored (called in the relevant terminology "signature"), the witness mentioned that there were physical characteristics of the bank note such as dimensions, magnetic or UV characteristics but no further details were known to him. Neither any details on how the comparison of these signatures was performed by the system were known nor disclosed.

### 3.2 Novelty, Art 54 EPC

3.2.1 The Opponents argued that claim 1 lacked novelty with respect to E1 and the testimony of the witness.

3.2.2 Concerning E1, it describes a method of verifying the authenticity of documents, more specifically bank notes. Besides verifying the authenticity, the method of E1 performs also tracking of counterfeit bank notes (see page 12, "Rückverfolgung" in line 5 ed.seq.). Images of deposited bank notes are extracted at the ATM and stored with information about the depositor (transaction log). When a bank note is identified, at an external station, that as being counterfeit, images of it are extracted and compared with the originally extracted images in order to identify the originally deposited bank note and its depositor through the transaction log (see page 12, lines 6-18). The main difference between claim 1 and E1 is that in E1 when tracing of the bank note is to be performed, there is a comparison between an image of the bank note initially scanned at the ATM upon deposit ("Prüfstation 30") and the image made at the central office (or bank - "zentrale Prüfeinrichtung 35") when the second authentication of the bank note is performed. In comparison to that, in claim 1 the comparison is made between images of the bank note made by the same image extracting device at the ATM, the first upon initial deposit and the second after the bank note is identified as counterfeit and returned to the ATM in order to be traced. The Opponents argued that the image extraction device according to claim 1 was "configured to extract" images according to the wording of the claim and that it was not necessarily happening so. Furthermore, according to the Opponents, it was evident that the image extraction device in the ATM of E1 ("Prüfstation 30") could also be used to extract (it was suitable for extracting) the second image of the bank note.



3.2.3 The opposition division cannot follow this argument. There is no doubt about the operation of the system of claim 1. The bank note is scanned twice by the same image extraction device and these images are used by the comparison device to calculate the degree of similarity. In contrast to that, in the system of E1 the initial bank note is scanned at the "Prüfstation 30", which can be at the ATM, and the counterfeit bank note at the "zentrale Prüfeinrichtung 35" which is at the bank central office and it is these two images that are used for the tracing. It appears thus that in the claimed system there is an additional image extraction that takes place after the definitive authentication of the bank note, whereas in E1 it is the image used by the central bank office to definitely authenticate the document that is compared to the initially extracted image. It is then clear that at least the feature of claim 1 defining the ATM comprising an image extraction device configured to extract one or more initial images from the initial bank note and the counterfeit bank note is not disclosed in E1 and that claim 1 is new.

3.2.4 The opponents argued also that claim 1 lacked novelty when compared to the testimony of the witness. However, as mentioned in §3.1.7 above, no details about what type of bank note sensor or which characteristics of the bank notes were used when generating the corresponding signatures of the bank notes. Hence, the features of claim 1 relating to an image extraction device and the use of images of the bank notes by the comparison device cannot be considered to have been disclosed by the prior use either.

3.2.5 Since no other of cited prior art documents discloses all of the features of claim 1 or claim 8, the subject matter of the claims is new in the sense of Art. 54 EPC.

### 3.3 Inventive Step, Art 56 EPC

3.3.1 The Opponents argued for the lack of inventive step in the claimed subject matter starting from E1 and from the testimony of the witness as closest prior art.

3.3.2 According to the Opponents, when E1 is considered as closest prior art, the differences between claim 1 and E1 appear to be : (i) the use of the same image extraction device in the claimed system whereas in E1 the images are extracted by different scanning devices and (ii) the details on how the image comparison is done, the claimed system calculating degree of similarity between the compared images and retrieving images within a range of degree of similarity, E1 being silent

about the image comparison altogether and mentioning simple matching. It was argued by the opponents that details about how two images are compared could be found in document E4, where Euclidean distances between the two compared images are calculated and a match is accepted if the calculated result is below a predetermined threshold. This is to be interpreted as a range of degree of similarity and it is known to the skilled person. Furthermore, the use of the same image extraction device would be obvious to the skilled person who would wish to increase the accuracy of the tracing.

3.3.3 The opposition division cannot follow this argument. Starting from E1 and with the identified differences (i) and (ii) as above, the problem to be solved by the skilled person appears to be how to improve the accuracy and the reliability of the tracing of the bank notes. Document E4 is related to authentication of bank notes and not tracing. In the system of E4 deposited bank notes are scanned and the acquired image is compared to prestored images of genuine bank notes. Moreover, the type of images used is different as UV spectra of the bank notes are generated and used for the authentication (see paragraphs 8 and 9 of E4) and not images of the bank notes. Hence, E4 describes a system that is used for a different purpose and based on a different principles of operation and measurement. In order for the teaching of E4 to be included in E1, the system of E1 has to be substantially modified. It is thus the opinion of the opposition division that the skilled person would not seek to combine the teachings of E1 and E4. Even in the case that they were combined, there is still missing the feature of the same image extracting device which extracts images of both the initial and the counterfeit bank note. In E4 there is only one scanning operation since the acquired images are compared to prestored images. The division does not agree with the opponents that it would be obvious to the skilled person to use the same image extracting device in order to approve accuracy. Neither the operation of E1 nor that of E4 would envisage such a step. In E1 the bank notes are not even returned to the original ATM system at all since the images extracted for the authentication of the bank note at the central bank office are used for the tracing. There is no hint in E1 for the skilled person to return to the ATM where the bank note was originally deposited at, acquire a third image of the bank note and use that for tracing. Claim 1 is thus not obvious to the skilled person in respect to E1 and E4.

3.3.4 Regarding the prior use, the missing features are those related to the image

extracting device and the use of images of the bank notes for the tracing. The prior use gave no details about the bank note sensor. Concerning the signatures of the bank notes, it appears that these would comprise physical characteristics of the bank notes such as dimensions, magnetic or UV properties. The Opponents argued that the skilled person would find the information concerning use of images in comparing bank notes in E4 and would combine that with the prior use to arrive at the claimed system.

3.3.5 The division does not concur with the opponents. The content and context of E4 were explained in §3.3.3 above. Starting from the prior use, the difference between the claimed system and the one disclosed therein lies in the type of the bank note sensor and how the image comparison is performed in order to trace the bank note. The system of the prior use traces bank notes using signatures. These signatures do not appear to comprise images of the bank note but rather other physical characteristics, hence the bank note sensor is not an image extracting device. The skilled person is actually led away from using an image extraction device as the one of the claimed invention in the system of the prior use as it would completely change its operating principles. Given that E4 describes a system whereby images of bank notes are compared, even if only UV spectral images, combination of the teaching of E4 with the one of the prior use does not appear possible. There appears to be no hint to the skilled person that would allow him to modify the system described in the prior use and arrive at the invention without using inventive skill.

3.3.6 None of the other prior art documents appears to disclose features which, taken alone or in combination would permit the skill person to arrive at the claim invention without being inventive.

3.3.7 Hence, the claimed subject matter is found to be involving inventive step in the sense of Ar. 56 EPC.

## **C. DECISION**

It is the decision of the opposition division under Art. 101 (3) EPC to maintain the patent as amended during the opposition proceedings.